

WE CLAIM:

1. A method of forming electrical contact between levels in an integrated circuit, the method comprising:
  - forming a conductive plug beginning from a first level;
  - covering said conductive plug with a shield;
  - at least partially forming an electrical device beginning from the first level adjacent the conductive plug while the conductive plug is covered with the shield;
  - opening the shield; and
  - extending a contact to directly contact the conductive plug after opening the shield,wherein the electrical device is distinct from a conductive plug.
2. The method of Claim 1, wherein the conductive plug extends adjacent the electrical device at least about 20% of a height of the electrical device when completed.
3. The method of Claim 2, wherein the conductive plug extends adjacent the electrical device at least about 50% of the height of the electrical device when completed.
4. The method of Claim 1, wherein forming the electrical device comprises forming an integrated stacked capacitor.
5. The method of Claim 4, wherein the stacked capacitor extends above an upper level of the conductive plug.
6. The method of Claim 5, further comprising depositing an interlevel dielectric over the stacked capacitor and over the conductive plug, and extending the contact comprises etching a via through the interlevel dielectric to expose the conductive plug.
7. The method of Claim 1, further comprising forming lower plugs below the first level, the lower plugs electrically connecting the electrical device and the conductive plug to a plurality of transistor active areas in a semiconductor substrate.
8. The method of Claim 1, wherein forming the electrical device comprises forming a capacitor plug simultaneously with forming the conductive plug.
9. The method of Claim 8, wherein forming the electrical device further comprises depositing an interlevel dielectric above the capacitor plug, etching a via through the interlevel dielectric, and removing the capacitor plug, thereby extending the via.

10. The method of Claim 9, wherein forming the electrical device further comprises lining the extended via with a bottom electrode.

11. The method of Claim 8, wherein forming the electrical device further comprises depositing a capacitor dielectric and a top electrode layer over the capacitor plug.

12. The method of Claim 1, wherein the electrical device comprises a stacked capacitor in a memory array, including a common reference electrode extending above the conductive plug.

13. The method of Claim 12, wherein extending a contact to directly contact the conductive plug comprises opening a window through the reference electrode, forming an insulating spacer on exposed sidewalls of the reference electrode, and forming the contact narrower than the window.

14. The method of Claim 13, wherein forming the insulating spacer comprises depositing a blanket ILD into the window.

15. The method of Claim 13, wherein opening the window comprises exposing the conductive plug.

16. The method of Claim 1, wherein opening the shield comprises removing the shield.

17. The method of Claim 1, wherein opening the shield comprises etching through the shield.

18. A method of forming a contact adjacent electrical devices in an integrated circuit, the method comprising:

forming an electrical device independent of a conductive plug, the electrical device extending from a first level to a second level;

forming an insulating layer above the electrical device;

etching a via adjacent the electrical device, the via exposing a conductive element extending from the first level to a position between the first level and the second level; and

filling the via with a conductive material to form the contact.

19. The method of Claim 18, wherein the conductive element extends more than about 20% of a distance from the first level to the second level.

20. The method of Claim 19, wherein the conductive element is exposed at a position at least about 50% of the distance between the first level and the second level.

21. The method of Claim 18, wherein the conductive element is exposed at a position about level with the second level.

22. The method of Claim 18, further comprising depositing a conducting line above the insulating layer in electrical contact with the contact.

23. The method of Claim 18, wherein the conductive element comprises a metal plug.

24. The method of Claim 18, wherein the electrical device comprises a stacked capacitor.

25. The method of Claim 18, wherein the contact comprises a bit line contact in a memory array.